GlideScope®

Video Laryngoscopes

GlideScope Cobalt AVL System

User's Manual and Quick Reference Guide

0900-2654-04-20

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Video Laryngoscopes

GlideScope Cobalt AVL System
Quick Reference Guide

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The GlideScope® technology is covered under US Patents (6,655,377) (6,543,447) as well as European Patent 1307131. Additional patents pending.

Information in this User's Manual and Quick Reference Guide may change at any time without notice. For the most up-to-date information, see the online manuals on verathon.com.

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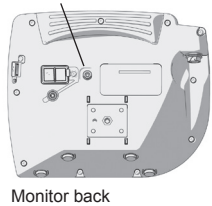
The GlideScope® Cobalt AVL System Quick Start

The Cobalt AVL System

The GlideScope® Cobalt AVL monitor may be used immediately by plugging it into an AC power source, or by fully charging the battery prior to first use.

Charging the battery:

- Connect the female end of the 12V DC power supply to the power socket on the back panel of the monitor.
- Plug the male end of the power supply into a hospital-grade power outlet.



Monitor back

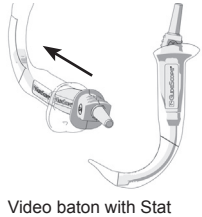
Connect the video baton to the monitor:

- Align the arrow on the video baton cable to the arrow on the video socket
- Insert the cable into the socket (you will hear a “click” when successfully connected)

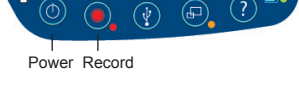
Monitor back
with video baton cable

Insert the video baton into the GVL® Stat:

- Ensure that the GlideScope® logos on the video baton and the Stat are aligned for proper insertion
- Ensure that the video baton is not inserted backward


Video baton with Stat

- Press the Power Button to turn the system on
- Press the Record Button to activate the recording option



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The GlideScope® Cobalt AVL Buttons, Icons, and Connections

The main component of the GlideScope® Cobalt AVL System is the digital, full-color monitor. The front of the monitor includes the buttons you use to operate the Cobalt AVL. There are also indicator lights for different operation status of the system.

The back panel of the monitor includes the sockets and ports for connecting the power cord, video baton cable, external video cable, and USB drive. There is also a mounting plate that you use to attach the monitor to a mobile stand or IV pole.

Cobalt AVL Buttons

Power: press and release to turn on the Cobalt AVL. Press and hold for three seconds to turn off the Cobalt AVL.

Record: press to start and stop recording. When you are recording, the Record LED is on and the record icon will be shown on the screen.

Download Video: press to access the video download menu.

External Video: press to display the video on an external monitor. The yellow indicator light denotes the key has been activated.

Tutorial: press and hold for three seconds to play the GlideScope® 4-Step Technique Tutorial.

Cobalt AVL Icons

Battery Status: shows the remaining battery capacity. If blue, the battery is charged. If red, the battery must be charged.

Cancel Operation: appears above the button that cancels the current operation, moves to the previous screen, or returns to the main menu.

Progress Confirmation: these animations show the Cobalt AVL system's progress when shutting down or playing the tutorial video.

Download New: indicates button to press to download all new recordings (not previously downloaded).

Download All: indicates which button to press to download all video.

Cancel Download: indicates which button to press to cancel download.

USB Not Found: animation indicates that a USB drive needs to be inserted into the USB port. If the USB drive is connected, a progress bar will display during download.

Save: appears to indicate that the system is saving the recorded file to internal memory.

Connect Video Baton: appears when the video baton is not connected to the monitor.

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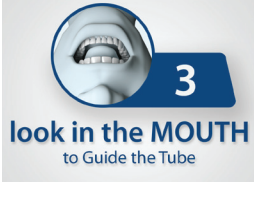
The GlideScope 4-Step Technique

Looking directly into the patient's mouth and with the GlideScope in the left hand, introduce the video laryngoscope into the midline of the oral pharynx.

With the laryngoscope inserted, look to the monitor to identify the epiglottis, then manipulate the scope to obtain the best glottic view.



Looking directly into the patient's mouth, not at the screen, carefully guide the distal tip of the tube into position near the tip of the laryngoscope.

It is important to look into the mouth at this step to avoid injuring the tonsils or soft palate.

Look to the monitor to complete the intubation; gently rotate or angle the tube to redirect as needed.

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Tips for GlideScope Video Laryngoscope Insertion

- Verathon® recommends inserting the GlideScope video laryngoscope down the midline of the tongue to the epiglottis.
- The GlideScope video laryngoscope may be used to produce a Macintosh indirect lift of the epiglottis or a Miller lift.
- Intubations using GlideScope video laryngoscopes require approximately 0.5–1.5 kg of lifting force.
- Use of an endotracheal tube stylet is recommended. The GlideRite® Rigid Stylet is designed to complement the angle of the GlideScope video laryngoscope to facilitate intubation. A malleable stylet may be used with a 60–90° angle.

- To aid the passage of the endotracheal tube, withdraw the stylet (approx. 5 cm) while gently advancing the ETT. A 1 cm adjustment (withdrawal) of the laryngoscope also may be beneficial to reduce the viewing angle and allow the glottis to drop.

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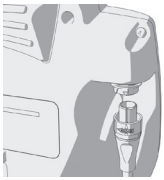
Cleaning the GlideScope® Cobalt AVL System

Cleaning and Disinfecting the Video Baton

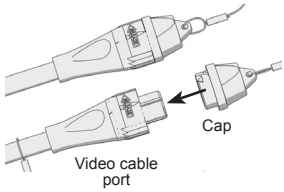
Caution. Risk of permanent equipment damage. Do not expose the GlideScope® Cobalt AVL Video Baton to temperatures above 60°C.

The GlideScope® Cobalt AVL is a combination of a nonsterile, reusable video baton and a sterile, single-use Stat. Low Level Disinfection is recommended for the Cobalt AVL Video Baton after every patient use. High Level Disinfection is required for the video baton when it is visibly soiled.

1. Disconnect the video baton from the monitor.
2. Insert the attached protective cap into the video cable port to protect the electronic connector as shown.
3. Wash the video baton manually using a hospital grade equipment detergent or an enzymatic debridement agent/detergent to remove all foreign material from the surface of the device.
4. The video baton can now be disinfected.



Video baton disconnected from monitor



Cap inserts for cleaning

Video baton

Cleaning and Disinfecting the Monitor

Clean the exterior of the monitor by wiping with IPA (70% isopropyl alcohol), bleach (100ppm), or a mild detergent and water.

Monitor front

Cleaning and Disinfecting the Cradle

Clean the cradle by wiping with a standard hospital-grade surface cleaning product.

Cradle

For more detailed cleaning instructions, see the GlideScope® Cobalt AVL System User's Manual.

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General Cleaning and Disinfection Information for Cobalt AVL

Risk Assessment

Device	Sterile	Use	Spaulding's/ CDC Classification	Disinfection			Sterilization
				Low Level	Intermediate Level	High Level	
GVL® Stat	Sterile	Single Use	Semicritical				
Video Baton*	Non-sterile	Reusable	Noncritical	X			
GlideRite® Rigid Stylet	Non-sterile	Reusable	Semicritical			X	
Monitor#	Non-sterile	Reusable	Noncritical	X			
Cradle#	Non-sterile	Reusable	Noncritical	X			

IT IS UNDERSTOOD THAT ALL ITEMS IN THIS CHART WILL BE USED AS INTENDED.

Ensure that, at a minimum, the monitor and video baton cradle are disinfected when visibly soiled and on a regular basis as per a schedule established by the medical care facility or provider (such as after use on each patient or once daily or weekly).

Warning: Disinfectants and cleaning methods listed are recommended based on compatibility with device materials. Refer to the disinfectant label instructions for guidance on disinfection efficacy and appropriate clinical uses.

Caution: Meticulous cleaning must precede any disinfection process, to ensure all foreign matter is removed from the surface of the device. This allows the active ingredients of the chosen process to reach all the surfaces of the device.

Note: When using any high-level disinfectants, read and comply with product use instructions in all applications.

Availability of disinfection products varies by country, and we are unable to test products in every market. Please use the list of recommended disinfectants in this manual to compare with products available locally.

Footnotes:

* The Cobalt AVL Video Baton is a nonsterile reusable device, which is protected from contact with mucous membranes and non intact skin by the Stat (sterile, single-use) when used as intended. Low Level Disinfection is recommended for the Cobalt AVL Video Baton after every patient use. High Level Disinfection is required for the video baton when it is visibly soiled.

\# Disinfect monitor and cradle when they are visibly soiled and on a regular basis as per a schedule established by the medical care facility or provider.

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GlideScope Products and Systems

		REUSABLE				SINGLE USE STATS				
GVL® Size		GVL 2	GVL 3	GVL 4	GVL 5	GVL 0	GVL 1	GVL 2	GVL 3	GVL 4
Patient Weight		1.8–10 kg	10 kg–Adult	40 kg–Morbidly Obese	40 kg–Morbidly Obese	< 1.5 kg	1.5–3.6 kg	1.8–10 kg	10 kg–Adult	40 kg–Morbidly Obese
Cobalt AVL	Video Baton 1-2					✓	✓	✓		
	Video Baton 3-4								✓	✓
GlideScope GVL		✓	✓	✓	✓					
Ranger			✓	✓						
Ranger Single Use	Video Baton 1-2					✓	✓	✓		
	Video Baton 3-4								✓	✓
GlideRite® Rigid Stylet*			✓						✓	

Cobalt AVL System (single use)

GVL System (reusable)

Ranger System (reusable)

Ranger Single Use System

Note: System configurations vary. The Cobalt AVL and Ranger Single Use Video Batons are reusable.

*For use with endotracheal tubes 6.0 mm and larger.

GlideScope® Product Specifications

SYSTEM MONITORS

Cobalt AVL Monitor

Color, 6.4in (diagonal), VGA 640 x 480
Height: 190mm
Width: 225mm
Depth: 80mm
Weight: 1.0kg

GVL® Monitor

Color, 6.4in (diagonal), 440 x 234
Height: 167mm
Width: 207mm
Depth: 83mm
Weight: 1.4kg

Ranger Monitor

Color, 3.4in (diagonal), 480 x 234
Height: 168mm
Width: 173mm
Depth: 49mm
Weight: 0.56kg

SINGLE USE SYSTEM COMPONENTS

Cobalt AVL Video Baton 1-2

Length of flexible baton: 66mm
Height at camera: 6mm
Width at camera: 7mm
Video cable length: 204cm
Weight: 180g

Cobalt AVL Video Baton 3-4

Length of flexible baton: 105mm
Height at camera: 11mm
Width at camera: 11mm
Video cable length: 203cm
Weight: 238g

GVL 0, 1, and 2

Length (blade tip to handle): 36mm/44mm/56mm
Height at camera: 9mm/9mm/9mm
Width at camera: 9mm/10mm/11mm

GVL 3 and 4

Length (blade tip to handle): 78mm/92mm
Height at camera: 16mm/15mm
Width at camera: 16mm/20mm

Ranger Video Baton 1-2

Length of flexible baton: 66mm
Height at camera: 6mm
Width at camera: 7mm
Video cable length: 97cm
Weight: 100g

Ranger Video Baton 3-4

Length of flexible baton: 102mm
Height at camera: 11mm
Width at camera: 11mm
Video cable length: 96cm
Weight: 140g

REUSABLE SYSTEM COMPONENTS

GVL 2

Length (blade tip to handle): 47mm
Height at camera: 15mm
Width at camera: 18mm

GVL 3

Length (blade tip to handle): 82mm
Height at camera: 16mm
Width at camera: 20mm

GVL 4

Length (blade tip to handle): 103mm
Height at camera: 14mm
Width at camera: 27mm

GVL 5*

Length (blade tip to handle): 103mm
Height at camera: 14mm
Width at camera: 27mm

Ranger GVL 3

Length (blade tip to handle): 78mm
Height at camera: 16mm
Width at camera: 14mm

Ranger GVL 4

Length (blade tip to handle): 90mm
Height at camera: 16mm
Width at camera: 20mm

Note: The Cobalt AVL and Ranger Single Use Video Batons are reusable.

**The GVL 5 is designed to accommodate anatomical anomalies sometimes associated with bariatric patients.*

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Important Information

Statement of Prescription

Federal (United States) law restricts this device to sale by, or on the order of, a physician.

The GlideScope Cobalt AVL System should be used only by individuals who have been trained and authorized by a physician, or by health care providers who have been trained and authorized by the institution providing patient care.

Intended Use

GlideScope Cobalt AVL System is intended for use by qualified medical professionals to obtain a clear, unobstructed view of the airway and vocal cords for medical procedures.

Cautions

Caution. Risk of permanent equipment damage.

Do not expose GlideScope Cobalt AVL System to temperatures above 60 °C (140 °F).

Do not use autoclaves or pasteurizers for the Cobalt AVL System.

Use of such methods to disinfect GlideScope Cobalt AVL System will cause permanent device damage and void the warranty. Refer to the Cleaning section for a list of approved cleaning procedures and products.

Electrical Class II, Applied Part BF: Electrical shock hazard. Refer servicing to qualified personnel.

This device has been tested and found to comply with the standards listed in the Standards and Approvals section of this manual. These limits are designed to provide reasonable protection against harmful interference in typical medical installations.

This device can radiate radio frequency energy and if used properly is very unlikely to cause harmful interference to any other device(s) in the vicinity.

Product Information

Product Description

The GlideScope Cobalt AVL System is designed for "1st pass success." The Cobalt AVL provides a consistently clear view of a patient's airway, enabling quick intubations. The Cobalt AVL design is based on the GlideScope GVL®, which is clinically proven to achieve a Cormack-Lehane Grade I or II view 99 percent of the time.[1]

The GlideScope Cobalt AVL System combines a high-resolution, full-color digital camera with an integrated LED light source and anti-fogging mechanism. The Cobalt AVL Video Baton connects directly to a full-color, digital video monitor for real-time viewing.

The System may include the following components:

- Cobalt AVL Monitor
- Cobalt AVL Video Baton 1-2 (for neonatal patients)
  - GVL 0 Stat (patients less than 1.5 kg)*
  - GVL 1 Stat (patients between 1.5–3.6 kg)*
  - GVL 2 Stat (patients between 1.8–10 kg)*
- Cobalt AVL Video Baton 3-4 (for use on children and adults)
  - GVL 3 Stat (patients between 10 kg–Adult)*
  - GVL 4 Stat (patients between 40 kg–Morbidly obese)*
- GlideRite® Rigid Stylet (recommended)

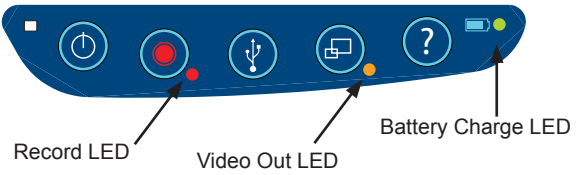
* Weight ranges are approximate; a medical professional must evaluate on a patient-by-patient basis.

1. Cooper RM, Pacey JA, Bishop MJ, McCluskey SA. Early clinical experience with a new videolaryngoscope (GlideScope) in 728 patients. *Can J Anaesth*. 2005;52(2):191-198.

GlideScope Cobalt AVL Monitor Front Panel

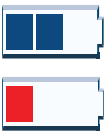
Buttons, Icons, and Connections

The main component of the GlideScope Cobalt AVL System is the digital, full-color monitor. The front of the monitor includes the screen and the buttons you use to operate the Cobalt AVL. There are also indicator lights for different operation status of the system.



Cobalt AVL Button Panel	
	Power: press and release to turn on the Cobalt AVL. Press and hold for three seconds to turn off the Cobalt AVL.
	Record: press to start and stop recording. When you are recording, the Record LED is on and the record icon will be shown on the screen.
	Download Video: press to access the video menu to download videos in the device.
	External Video: press to display video on an external monitor. The yellow indicator light denotes the key has been activated.
	Tutorial: press and hold for three seconds to play the *GlideScope 4-Step Technique* tutorial.

Cobalt AVL Icons

Battery Status: shows the remaining battery capacity. If the icon is blue, the battery is charged. If the icon is red, the battery must be charged.	
Cancel Operation: appears above the button that cancels the current operation, moves to the previous screen, or returns to the main menu.	
Progress Confirmation: these animations show the Cobalt AVL system's progress when shutting down or playing the tutorial video.	
Download New: indicates button to press to download all new recordings (not previously downloaded).	
Download All: indicates which button to press to download all video recordings.	
Cancel Download: indicates which button to press to cancel download.	
USB Not Found: animation indicates that a USB drive needs to be inserted into the USB port. If the USB drive is connected, a progress bar will display during download.	
Save: appears to indicate that the system is saving the recorded file to internal memory.	
Connect Video Baton: appears when the video baton is not connected to the monitor.	

Battery Indicator LED is:

Green: unit fully charged

Red: charging

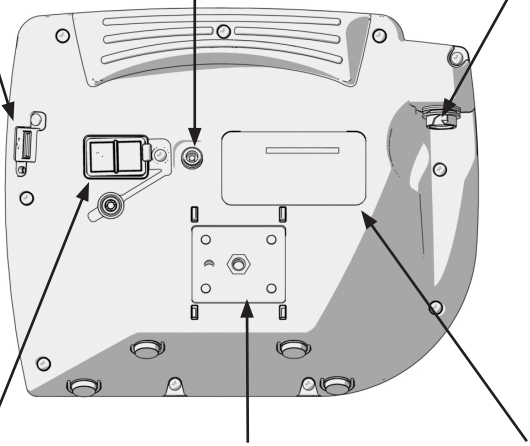
Flashing Red: indicates a problem with the battery. Charge for 12 hours and if still flashing, contact Verathon®.

GlideScope Cobalt AVL Monitor Back Panel

USB Port: Connect a USB drive to download video.

Power Socket: Connect the barrel plug from the 12V power adaptor.

Video Baton Port: Connect the video baton cable.



Video Out Port: Connect the HDMI to DVI cable from the external monitor.

Mounting Plate: Use this plate to connect the monitor to mobile stand or IV pole.

Product Identification: Includes product serial number.

GlideScope Cobalt AVL System Configurations

You can set up the GlideScope Cobalt AVL System in two configurations:

Cobalt AVL
on mobile stand

Cobalt AVL
on IV pole

Using the GlideScope Cobalt AVL System

The GlideScope Video Cobalt AVL System provides a consistently clear view of a patient's airway, enabling quick intubation. There are several tasks you must complete to successfully use the Cobalt AVL:

1. Select the appropriately-sized Cobalt AVL Video Baton and GVL® Stat for the patient.
2. If the video baton is not connected, connect the baton to the Cobalt AVL monitor.
3. Insert the video baton into the Stat. Power on the system.
4. Verify that the video baton is operating properly and that an image appears on the monitor screen.
5. Press the **Record** button to start or stop recording.
6. Reference the *GlideScope 4-Step Technique* to perform intubations.
7. Optional: Download video to the USB drive.

Note: If the Cobalt AVL System locks up or becomes unresponsive for any reason, press and hold the **Power** key for 10 seconds to power down the system.

If the Cobalt AVL Video Baton or Stat are stored in cold conditions, additional warming time may be required for optimal performance of the anti-fog feature.

Cleaning, Disinfecting and Maintaining the GlideScope Cobalt AVL

General Maintenance Information

Periodic inspections should be performed to ensure safe and effective operation. It is recommended that a qualified technician perform a full visual inspection of all components at least every three months.

The technician should check for the following items:

- External damage
- Damage to the power supply
- Connectors and cable insulation integrity

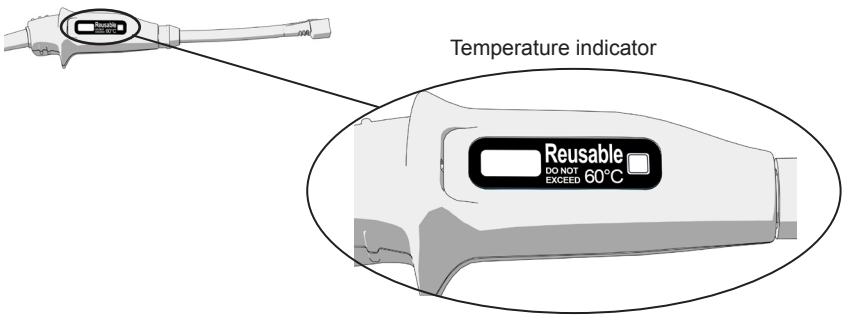
To ensure patient safety, users should perform a routine inspection of the GlideScope Cobalt AVL Video Baton before every use to ensure that all endoscopic components are free of unintended rough surfaces, sharp edges, protrusions or cracks.

If inspection reveals any faults in the components, contact Verathon Medical Customer Care. All repairs must be performed by an authorized Verathon Medical Service Center.

Caution. Risk of permanent equipment damage.

Do not expose GlideScope Cobalt AVL Video Batons to temperatures above 60 °C (140 °F). Do not disinfect the GlideScope Cobalt AVL Video Batons using equipment such as autoclaves, ultrasonic cleaners, or pasteurizers. Use of such methods will cause permanent device damage and void the warranty. Refer to Cleaning Section for a list of approved cleaning procedures and products.

Monitor the color of temperature indicator to avoid overheating the Cobalt AVL Video Baton



■	The temperature indicator turns black if the GlideScope Cobalt AVL Video Baton is heated above 60 °C.
■ □	A gray or white indicator does not indicate overheating.

General Cleaning and Disinfection Information

Table 1: Risk Assessment

Device	Sterile	Use	Spaulding's/ CDC Classification	Disinfection			Sterilization
				Low Level	Int. Level	High Level	
Video Baton*	Non-sterile	Reusable	Noncritical	X			
GVL® Stat	Sterile	Single-use	Semicritical				
Stylet	Non-sterile	Reusable	Semicritical			X	
Monitor#	Non-sterile	Reusable	Noncritical	X			
Cradle#	Non-sterile	Reusable	Noncritical	X			

It is understood that all items in this chart will be used as intended.

Note:

* The Cobalt AVL Video Baton is a nonsterile, reusable device, which is protected from contact with mucous membranes and non intact skin by the Stat (sterile, single-use) when used as intended. Low Level Disinfection is recommended for the Cobalt AVL Video Baton after every patient use. High Level Disinfection is required for the video baton when it is visibly soiled.

\# Disinfect monitor and cradle when they are visibly soiled and on a regular basis as per a schedule established by the medical care facility or provider.

– Shaded areas—not required/not compatible with device materials.

– Checked boxes (X) show minimum requirement.

– Unshaded areas show permissible levels of disinfection based on compatibility with device materials.

Table 2: Chemical Compatibility and Disinfection Methods for Cobalt AVL Video Baton

Active Ingredient	Compatibility	Conditions	Disinfection Level	Caution/ Comments
Enzymatic debridement agent/ detergent	General hospital grade	As per chemical manufacturer's instructions	N/A	Surface cleaning only in preparation for disinfectant
Isopropyl Alcohol Solution	70%	70% used to wipe down with minimum 1 minute exposure	Low	
Glutaraldehyde	Up to 3.4%	2.0% – exposure for minimum 20 minutes at 20 °C or as per manufacturer's instructions	High	
Ortho-Phthalaldehyde	0.55%	0.55% – exposure for 12 minutes at 20 °C or as per manufacturer's instructions	High	
Peracetic Acid	0.2%	0.2% – exposure for minimum 12 minutes at 50 to 56 °C or as per manufacturer's instructions	See comments on right	Classified as a chemical sterilant
Hydrogen Peroxide	Up to 7.5%	7.5% – exposure for 30 minutes at ≥20 ºC or as per manufacturer's instructions	High	
Bleach (Sodium Hypochlorite)	Up to 8000 ppm	5000 ppm – exposure for 10 minutes at 20 °C	High	Corrosive for connector pins and SS ring
		500 ppm used to wipe down with minimum 1 minute exposure	Low	Noncorrosive at ≤ 500 ppm

Table 2: Chemical Compatibility and Disinfection Methods for GlideRite® Rigid Stylet

Active Ingredient	Compatibility	Conditions	Disinfection Level	Caution/ Comments
Enzymatic debridement agent/ detergent	General hospital grade	As per chemical manufacturer's instructions	N/A	Surface cleaning only in preparation for disinfectant
Isopropyl Alcohol Solution	70%	70% – exposure for 10 minutes at 20 °C	Intermediate	
		70% used to wipe down with minimum 1 minute exposure	Low	
Glutaraldehyde	Up to 3.4%	2.0% – exposure for minimum 20 minutes at 20 °C or as per manufacturer's instructions	High	
Ortho-Phthalaldehyde	0.55%	0.55% – exposure for 12 minutes at 20 °C or as per manufacturer's instructions	High	
Peracetic Acid	0.2%	0.2% – exposure for minimum 12 minutes at 50 to 56 °C or as per manufacturer's instructions	See comments on right	Classified as a chemical sterilant
Bleach (Sodium Hypochlorite)	≤ 500 ppm	500 ppm used to wipe down with minimum 1 minute exposure	Low	Non-corrosive at ≤ 500 ppm
N/A	Tested in autoclave (steam cycle)	Minimum 4 minute 132 °C pre-vacuum steam sterilization cycle	See comments on right	Based on requests from users, an autoclave cycle has been established for the Stylet for ease of use

Cleaning the GlideScope Cobalt AVL Video Baton

The GlideScope Cobalt AVL Video Baton, which is protected by the GVL® Stat, is not intended to have direct patient contact.

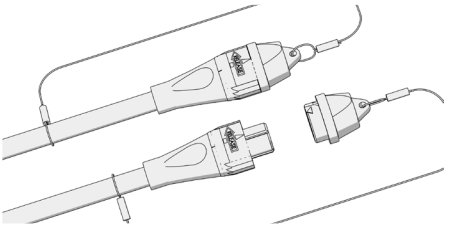
Caution

> Do not place the GlideScope Cobalt AVL Video Baton in the cradle if it is contaminated.

The video baton is a nonsterile, resuable device, which is protected from direct contact with the patient by the sterile single-use Stat. The video baton will normally only require cleaning and wiping down between uses when used as intended. High Level Disinfection is required for the video baton when it is visibly soiled.

To Clean the Video Baton

1. Detach the GVL Stat from the video baton.
   Note: A used GVL Stat is a biohazard and must be disposed of in a manner consistent with local protocols.
2. Disconnect the video baton from the monitor.
3. Place the protective cleaning cap over the connector. Make sure that the mark on the cap is aligned with the arrow on the cable.



Correct cleaning position – protective cap covering the electronic connector

4. Wash the video baton manually using a hospital grade equipment detergent or an enzymatic debridement agent/detergent to remove all foreign material (eg, soil and organic material) from the surface of the device.
5. The video baton can now be disinfected.

Cleaning the GlideScope Cobalt AVL Monitor

Wipe the exterior of the monitor with IPA (70% isopropyl alcohol), bleach (100 ppm) or a mild detergent and water.

Cleaning the GlideScope Cobalt AVL Cradle

Wipe the cradle with a standard hospital grade surface cleaning product.

Disinfecting the GlideScope Cobalt AVL Video Baton

To disinfect use any of the chemicals listed in Table 2 and do the following:

1. Ensure the equipment is clean (see Cleaning Section for video baton).
2. Ensure the protective caps on the connectors are secure.
3. Prepare the disinfectant solution at the concentration and temperature recommended by the disinfectant manufacturer. Disinfect the equipment following the disinfectant manufacturer's instructions or as stated in Table 1.
4. After the disinfection process, rinse (as applicable) and dry the video baton and then store the equipment in a clean environment.

Replacing the GlideScope Monitor Battery

Under normal operating conditions, the monitor battery will last 2–3 years; or approximately 500 charge/discharge cycles.

The battery is not user-replaceable. In case of battery malfunction, do not attempt to replace the monitor battery. Any attempts to replace the battery by unauthorized service technicians may cause serious harm to the user and will void the warranty. Please contact your Verathon Medical Customer Care Representative for more information on battery replacement.

Device Disposal

Disposal of this device can be coordinated through your Verathon Medical Service Center in accordance with WEEE requirements.

Symbol Directory

Symbol	Meaning
	Type BF equipment
	Class II Electrical equipment
	CE marking in accordance with the Medical Device Directive (CE 0413 for Sterile Devices)
	Canadian Standards Association (CSA) mark of certification to applicable standards for electromedical equipment
	Tested to Federal Communications Requirements
	Caution – consult accompanying documents. Read instructions before connecting or operating
	Subject to WEEE (Waste of Electronic Electrical Equipment) regulations

GlideScope Specifications, Standards and Approvals

General Specifications

Classification:	Electrical Class II, Applied Part BF
Line Voltage:	Range: 100–240 VAC, 50 and 60 Hz Connect to a medical grade power supply
DC Power Supply:	12V DC, 2.5A max
Fuse:	Internal 2.5A Hold / 5A Trip, 15V max

Operating and Storage Specifications

Operating Conditions
Temperature:.....10 °C to 40 °C
Relative Humidity:.....0 to 95%
Atmospheric Pressure:.....440–1060 hPa

Shipping and Storage Conditions
Temperature:.....-20 °C to 45 °C
Relative Humidity:.....0 to 95%
Atmospheric Pressure:.....440–1060 hPa

Charging Conditions
Temperature:.....0 °C to 40 °C
Relative Humidity:.....0 to 95%
Atmospheric Pressure:.....440–1060 hPa

Standards and Approvals

CMDCAS ISO 13485, Certificate No. 9235
EC Certificate for Class I sterile Stats, Certificate No. 41315937
CSA Requirements met (Master Contract # 213281), CSA Certificates issued
CB Scheme requirements met (CB Bulletin 112a), CB Test Certificates issued
CE Marking EMC Directive
VCCI Technical V-3

GlideScope®

Video Laryngoscopes

GlideScope Cobalt AVL System User's Manual

GlideScope®
Video Laryngoscopes

GlideScope Cobalt AVL System
User's Manual

Contents

Product Information 7

Product Description 7
Statement of Prescription 9
Intended Use 9
Notice to All Users 10
Cautions 10

GlideScope® Cobalt AVL Buttons, Icons, & Connections..... 12

GlideScope Cobalt AVL Button Panel 12
GlideScope Cobalt AVL Icons 13
GlideScope Cobalt AVL Monitor Back Panel 14

Getting Started..... 15

Before You Start 15
Initial Inspection 15
GlideScope Cobalt AVL System Configurations 16
Charge the Monitor Battery 17
Connect the Video Baton 18
Insert the Video Baton into the GVL® Stat 18
GlideScope Anti-Fog Feature 19
Connect to an External Monitor (Optional) 19
Perform a Functional Check 20
Set the GlideScope Cobalt AVL System Parameters (Optional) 21

Setting Up the GlideScope Cobalt AVL System..... 22

Set Up the GlideScope Cobalt AVL on a Mobile Stand 22
Set Up the GlideScope Cobalt AVL on an IV Pole 26

Using the GlideScope Cobalt AVL System..... 27

Select the Correct Video Baton and Stat 27
Set Up the Video Baton and Stat 28
Remove the Video Baton from the Stat 30
Start Recording 31
GlideScope 4-Step Technique 32
Downloading Video to a USB Drive 33

Cleaning, Disinfecting, and Maintaining the GlideScope® Cobalt AVL 35

General Maintenance Information 35
General Cleaning and Disinfection Information 36
Cleaning and Disinfecting the GlideScope Cobalt AVL System 39
Cleaning the GlideScope Cobalt AVL Video Baton 40
Disinfecting the GlideScope Cobalt AVL Video Baton 41
Cleaning the GlideScope Cobalt AVL Monitor 41
Cleaning the GlideScope Cobalt AVL Cradle 41
Cleaning and Disinfecting the GlideRite® Rigid Stylet 42
Replacing the GlideScope Monitor Battery 42
Device Disposal 42

GlideScope Cobalt AVL Warranties 43

Original First Year Total Customer Care℠ Warranty 43

Symbol Directory 45

GlideScope Cobalt AVL Product Specifications 46

GlideScope Specifications, Standards, and Approvals 48

GlideScope Cobalt AVL Parts and Accessories 49

Contact Information 50

Product Information

The GlideScope Cobalt AVL System is designed for "1st pass success." The Cobalt AVL provides a consistently clear view of a patient's airway, enabling quick intubations. The Cobalt AVL design is based on the GlideScope GVL, which is clinically proven to achieve a Cormack-Lehane Grade I or II view 99 percent of the time.[1]

Product Description

The GlideScope Cobalt AVL System combines a high-resolution, full-color digital camera with an integrated LED light source and anti-fogging mechanism. The Cobalt AVL Video Baton connects directly to a full-color, digital video monitor for real-time viewing.

The monitor can store up to one (1) hour of video (approximately 40 typical intubations), which you can download to a USB drive for archiving and further review. The monitor has a DVI Video Out through an HDMI connector. It is recommended that you use the HDMI to DVI cable provided by Verathon® to connect to an external medically approved monitor. You can operate the Cobalt AVL by connecting it to a medical-grade power supply provided by Verathon or by using an internal rechargeable lithium battery.

Figure 1 GlideScope Cobalt AVL System

1. Cooper RM, Pacey JA, Bishop MJ, McCluskey SA. Early clinical experience with a new videolaryngoscope (GlideScope) in 728 patients. *Can J Anaesth*. 2005;52(2):191-198.

The GlideScope Cobalt AVL System is an ideal tool for physicians and other health care professionals who need to effectively manage standard to difficult airways. It is useful for the intubation of normal airways, anterior airways, neonatal patients, obese patients, and patients with limited neck extension. Additionally, it is useful for teaching purposes, verification of endotracheal tube (ETT) placement, nasal intubation, and ETT exchange. The Cobalt AVL is easy to learn, use, and teach. It is ideal for acute care settings and emergency environments. It also integrates into standard ED, OR, ICU, and NICU applications.

The Cobalt AVL can be used with a combination of video batons and GVL® Stats. Single-use GVL Stats are offered in a comprehensive range of sizes, allowing clinicians to meet the particular requirements of patients ranging in size from preterm infants to morbidly obese adults.

The Cobalt AVL System is recommended for use with an endotracheal tube stylet, particularly the GlideRite® Rigid Stylet which complements the AVL blade angle.

The System may include the following components:

- Cobalt AVL Monitor
- Cobalt AVL Video Baton 1-2 (for neonatal patients)
  - GVL 0 Stat (patients less than 1.5 kg)*
  - GVL 1 Stat (patients between 1.5–3.6 kg)*
  - GVL 2 Stat (patients between 1.8–10 kg)*
- Cobalt AVL Video Baton 3-4 (for use on children and adults)
  - GVL 3 Stat (patients between 10 kg–Adult)*
  - GVL 4 Stat (patients between 40 kg–Morbidly obese)*
- GlideRite Rigid Stylet (recommended)

* Weight ranges are approximate; a medical professional must evaluate on a patient-by-patient basis.

GlideScope Cobalt AVL System may be useful for the following procedures:

- First use intubations, replacing direct laryngoscopy (DL)
- Normal or restricted oropharyngeal views/visualization and assessment of the oropharynx
- Cormack-Lehane Grades I–IV laryngeal views
- Trauma airways—excellent when dealing with blood and secretions in the airway
- Airway management in morbidly obese patients
- Preterm and neonatal intubations
- Patients requiring cervical spine immobilization
- Re-intubation and Endotracheal Tube Exchange in Intensive Care Unit (ICU) settings
- Supervision and documentation of the laryngoscopy
- Nasal tracheal intubation
- Insertion of transesophageal echocardiac probes
- Laryngoscopic foreign body removal
- Awake intubation for difficult airway management
- Insertion of double lumen tubes
- Teaching the anatomy of the airway

Statement of Prescription

Federal (United States) law restricts this device to sale by, or on the order of, a physician.

The GlideScope Cobalt AVL System should be used only by individuals who have been trained and authorized by a physician, or by health care providers who have been trained and authorized by the institution providing patient care.

Intended Use

GlideScope Cobalt AVL System is intended for use by qualified medical professionals to obtain a clear, unobstructed view of the airway and vocal cords for medical procedures.

Notice to All Users

Verathon® recommends that all users read this entire User's Manual before using the GlideScope Cobalt AVL System. Failure to do so may result in injury to the patient, compromise the performance of the system, and may void the system warranty.

Verathon recommends that new GlideScope users:

- Practice using the Cobalt AVL System on a mannequin before clinical use
- Acquire clinical experience on patients without airway abnormalities
- Obtain instruction from a qualified individual

Refer to page 32 for recommended techniques.

Cautions

Caution. Risk of permanent equipment damage.

Do not expose GlideScope Cobalt AVL System to temperatures above 60 °C (140 °F).

Do not use autoclaves or pasteurizers for the Cobalt AVL System.

Use of such methods to disinfect GlideScope Cobalt AVL System will cause permanent device damage and void the warranty. Refer to the Cleaning section which begins on page 35 for a list of approved cleaning procedures and products.

Electrical Class II, Applied Part BF: Electrical shock hazard. Refer servicing to qualified personnel.

This device has been tested and found to comply with the standards listed in the Standards and Approvals section of this manual (page 48). These limits are designed to provide reasonable protection against harmful interference in typical medical installations.

This device can radiate radio frequency energy and if used properly is very unlikely to cause harmful interference to any other device(s) in the vicinity.

However, there is no guarantee that interference will not occur in a particular installation. Interference can be determined by turning the device on and off. If this device does cause interference with other devices, try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving device
- Increase the separation between devices
- Connect the device to an outlet on a circuit different from that to which the other device(s) is (are) connected
- Consult your Verathon Medical Customer Care representative

Note: The GlideScope Cobalt AVL System must be used with the cables supplied by Verathon® to maintain electromagnetic interference (EMI) within certified limits.

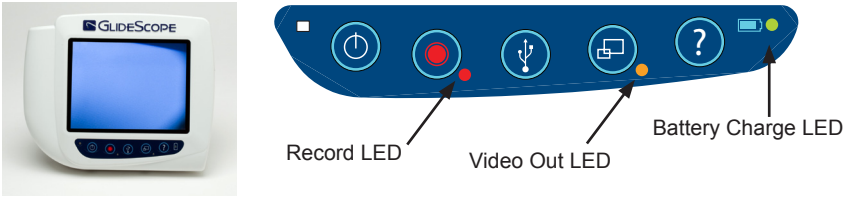
Users should be aware that portable and mobile equipment (cellular phones, etc) may affect medical electrical equipment and take appropriate precautions during operation.

GlideScope Cobalt AVL Buttons, Icons, and Connections

The main component of GlideScope Cobalt AVL System is the digital, full-color monitor. The front of the monitor includes the screen and the buttons you use to operate the Cobalt AVL. There are also indicator lights for different operation status of the system.

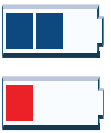
The back panel of the monitor includes the sockets and ports for connecting the power cord, video baton cable, external video cable, and USB drive. There is also a mounting plate that you use to attach the monitor to a mobile stand or IV pole.

Figure 2 Cobalt AVL monitor and buttons



GlideScope Cobalt AVL Button Panel	
	Power: press and release to turn on the Cobalt AVL. Press and hold for three seconds to turn off the Cobalt AVL.
	Record: press to start and stop recording. When you are recording, the Record LED is on and the record icon will be shown on the screen.
	Download Video: press to access the video menu to download videos in the device.
	External Video: press to display video on an external monitor. The yellow indicator light denotes the key has been activated.
	Tutorial: press and hold for three seconds to play the *GlideScope 4-Step Technique* tutorial.

GlideScope Cobalt AVL Icons

Battery Status: shows the remaining battery capacity. If the icon is blue, the battery is charged. If the icon is red, the battery must be charged.	
Cancel Operation: appears above the button that cancels the current operation, moves to the previous screen, or returns to the main menu.	
Progress Confirmation: these animations show the Cobalt AVL system's progress when shutting down or playing the tutorial video.	
Download New: indicates button to press to download all new recordings (not previously downloaded).	
Download All: indicates which button to press to download all video recordings.	
Cancel Download: indicates which button to press to cancel download.	
USB Not Found: animation indicates that a USB drive needs to be inserted into the USB port. If the USB drive is connected, a progress bar will display during download.	
Save: appears to indicate that the system is saving the recorded file to internal memory.	
Connect Video Baton: appears when the video baton is not connected to the monitor.	

Battery Indicator LED is:

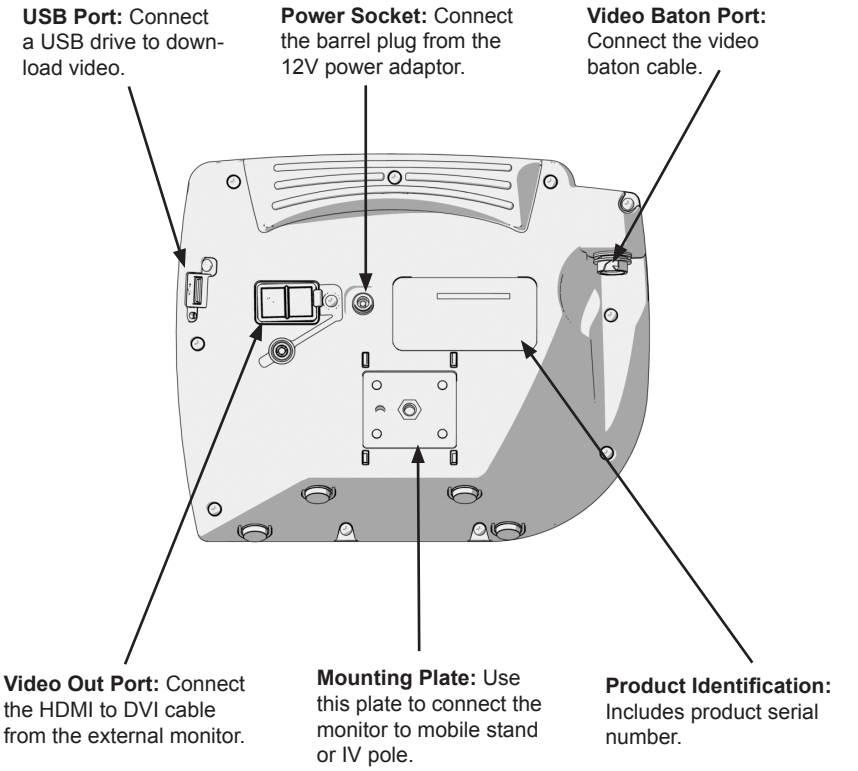
Green: unit fully charged

Red: charging

Flashing Red: indicates a problem with the battery. Charge for 12 hours and if still flashing, contact Verathon®.

GlideScope Cobalt AVL Monitor Back Panel

Figure 3 Cobalt AVL back panel


USB Port: Connect a USB drive to download video.
Power Socket: Connect the barrel plug from the 12V power adaptor.
Video Baton Port: Connect the video baton cable.
Video Out Port: Connect the HDMI to DVI cable from the external monitor.
Mounting Plate: Use this plate to connect the monitor to mobile stand or IV pole.
Product Identification: Includes product serial number.

Getting Started

Before you can use your GlideScope Cobalt AVL System, you must inspect the components, set up the system, and perform a functional test.

Before You Start

Before you use the GlideScope Cobalt AVL System for the first time, Verathon® recommends that you perform the following steps:

1. Inspect the system for any obvious physical damage that may have occurred during shipment.
2. Set up the Cobalt AVL in your preferred configuration: For specific instructions on system setup, see page 22.
3. Charge the monitor battery. You can use the system while the battery is charging. For specific charging instructions, see Charge the Monitor Battery on page 17.

   Note: The GlideScope will operate without charging the battery as soon as you plug it in to an appropriate power source. Plug in the Cobalt AVL Monitor using the 12VDC Medical Power Supply provided only by Verathon.
4. Connect a video baton to the monitor, and when preparing for intubation, insert the baton into a Cobalt GVL® Stat. For specific instructions on connecting the baton, see page 18.
5. Optional: Connect the monitor to an external source (such as a larger monitor screen) using the HDMI to DVI cable. For specific instructions, see page 19.
6. Perform a functional check. For specific instructions, see page 20.
7. Optional: Set the system parameters. For specific instructions, see page 21.

Initial Inspection

When you receive the GlideScope Cobalt AVL System, Verathon recommends that a biomedical engineer (or other qualified professional familiar with electronic medical devices) inspect the system for any obvious physical damage that may have occurred during shipment.

The components you receive vary depending on which configuration you ordered. To verify that you received the appropriate components, refer to the packing list included with your system.

If any of the components are missing or damaged, notify the carrier and Verathon Medical Customer Care or your local representative:

- 800.331.2313 (Canada and US)
- 425.867.1348 (International)
- +31.30.68.70.570 (Europe)

For additional contact information, see page 50.

GlideScope Cobalt AVL System Configurations

You can set up the GlideScope Cobalt AVL System in two configurations:

- Mount it on a mobile stand (Figure 4). For specific set up instructions, see page 22.
- Mount it on a user-supplied IV pole (Figure 5). For specific set up instructions, see page 26.

Figure 4 Cobalt AVL on mobile stand

Figure 5 Cobalt AVL on IV pole

Charge the Monitor Battery

The Cobalt AVL monitor includes a lithium battery. Verathon® recommends that you charge the battery before you use the Cobalt AVL. To charge the battery:

1. Connect the female end of the 12 volt DC power supply to the power socket on the back panel of the monitor.
2. Plug the male end of the power supply into a hospital-grade power outlet.

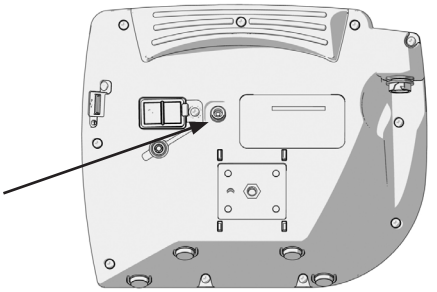


Figure 6 Connect the female end of the power supply to the power socket on the back panel of the Cobalt AVL monitor.

Under normal operating conditions, a fully charged battery lasts approximately 90 minutes before it needs to be recharged. For optimal battery life, make sure that the battery is fully charged before you try to use the Cobalt AVL in battery mode. You should charge the battery at temperatures between 0–40 °C.

The Battery icons show the battery charge level.

Battery must be charged

Approximately 1/3 battery life remaining

Approximately 2/3 battery life remaining

Battery is 2/3 to fully charged

Connect the Cobalt Video Baton

To connect the video baton to the monitor:

1. Align the arrow on the video baton cable and the arrow on the video socket.
2. Insert the cable into the socket. You will hear a "click" when the cable is successfully connected.

   Note: When disconnecting the connector cable rotate the black connector ring.

   Warning: If the video baton is powered on for an extended period of time it is possible to exceed 41 °C at the tip of the baton where the lighting and camera are located.

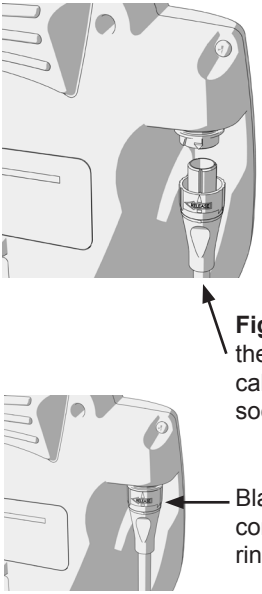


Figure 7 Insert the video baton cable into the socket

Insert the Video Baton into the GVL Stat

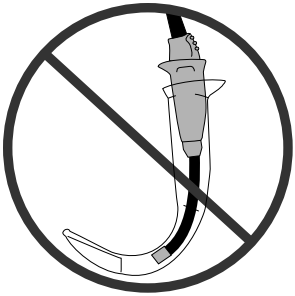
To insert the Cobalt AVL Video Baton into the sterile, single-use GVL® Stat:

1. Before you slide the baton into the stat, make sure that the logo on the side of the baton and the logo on the side of the stat are aligned.
2. Slide the video baton into the GVL Stat until it locks into place.

   Note: Make sure that you do not insert the video baton backwards.

Figure 8 Insert the video baton into the stat

Figure 9 Do not insert the video baton into the stat backwards



GlideScope Anti-Fog Feature

To ensure optimal results of the anti-fog heating feature on the GlideScope video laryngoscope, perform the following steps:

1. Prior to use, open the GVL® Stat pouch, but do not remove the Stat from the packaging (to keep the Stat clean until ready for use). With the Stat still in the package, insert the Cobalt Video Baton into the Stat. The video baton must be securely seated in the GVL Stat for efficient heating of the Stat.
2. Turn on the GlideScope monitor to activate the anti-fog heating feature.
3. After 30 seconds to 120 seconds, the anti-fog feature should be fully effective, depending on the ambient temperature and humidity where the equipment is being stored and/or used.

If the GlideScope Video Baton or Stat is stored in cold conditions, additional warming time may be required for optimal performance of the anti-fog feature.

Connect to an External Monitor (Optional)

You can connect the Cobalt AVL monitor to a medically-approved external monitor such as a TV screen by using an HDMI (high-definition multi-media interface) to DVI cable. Please contact your Verathon Medical Customer Care Representative for more information.

To connect the Cobalt AVL monitor to an external medical monitor:

1. Connect one end of the video output cable to the HDMI socket on the back of the Cobalt AVL monitor.
2. Connect the other end of the cable to the medically approved external monitor with a DVI port.
3. To see the video on the external monitor press the **External Video** button. The indicator LED illuminates when the connection is successful.

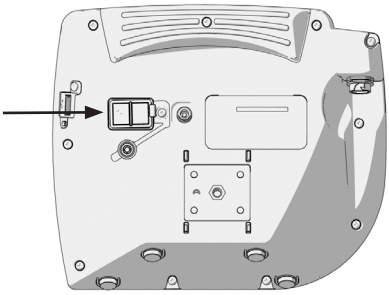


Figure 10 Connect one end of the video output cable to the HDMI socket

Perform a Functional Check

Before you use the GlideScope Cobalt AVL System for the first time, perform the following functional check to assure that the system is working properly. Please contact your Verathon Medical Customer Care Representative if your Cobalt AVL System does not function as described below.

To perform a functional check of the Cobalt AVL System:

1. Fully charge the monitor battery.
2. Connect a Cobalt AVL Video Baton to the monitor.
3. Turn the Cobalt AVL on by pressing the **Power** button located on the front panel of the monitor.
4. Look at the monitor screen to verify that an image is being received from the video baton.

Figure 11 Frame of reference

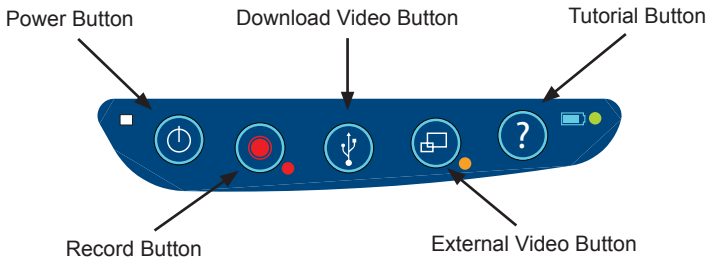
Note: When you insert the video baton into a GVL® Stat, a small portion of the stat appears in the upper left corner of the monitor screen. The edge of the stat is captured in the view because of the wide-angle camera lens used in the baton. This image acts as a frame of reference during the intubation process and assures that the orientation of the image is correct in the monitor.

5. Press the **Record** button to start recording. To stop recording, press the **Record** button again.
6. Depress and hold the **Tutorial** button for approximately 3 seconds. A video showing the *GlideScope 4-Step Technique* tutorial will begin playing.

Set the GlideScope Cobalt AVL System Parameters (Optional)

Verathon® ships the Cobalt AVL System with the time set to Greenwich Mean Time (GMT). You can change the system time and date to match the local time at your specific location.

Figure 12 Cobalt AVL buttons



To change the Cobalt AVL parameters:

1. Press and release the **Power** button.
2. Immediately (within two seconds) press and hold the **External Video** and **Tutorial** button (simultaneously) until "processing update" text message appears at the top of the screen.
   Note: Timing of this step is critical to proper performance.
3. Press the **Record** button to select the parameter you want to set.
4. Press the **Download Video** button to increase the parameter value.
5. Press the **External Video** button to decrease the parameter value.
6. Press the **Tutorial** button to save the parameters and close the main screen.

Setting Up the GlideScope Cobalt AVL System

You can set up the GlideScope Cobalt AVL System two ways:

- On a mobile stand (Figure 13)
- On an IV pole (Figure 16)

Set Up the Cobalt AVL on a Mobile Stand

You can set up the Cobalt AVL System on a mobile stand. The stand makes it easy for you to move the system from one location to another.

Figure 13 Cobalt AVL on mobile stand

Attach the center pole to the base

1. Remove the hex bolt and washers from the bottom of the pole.
2. Insert the bottom end of the pole into the top of the base.
3. To attach the pole to the base, screw the bolt and washers back into place. To ensure stability, make sure that you tighten the bolt securely.

Adjust the Height of the Mobile Stand

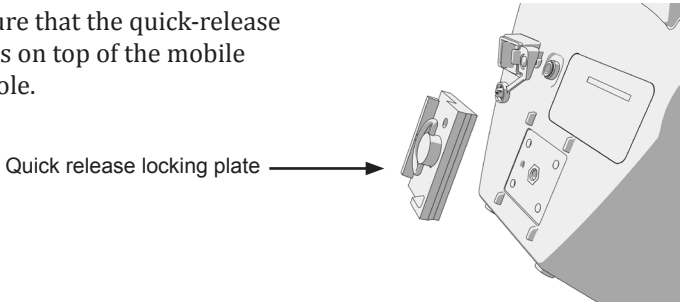
Figure 14 Adjust the height of the mobile stand

1. Turn the black height adjustment knob counterclockwise.
2. Raise or lower the pole to the desired height.
3. Turn the knob clockwise to secure the pole at the desired height.

Attach the Monitor to the Mobile Stand

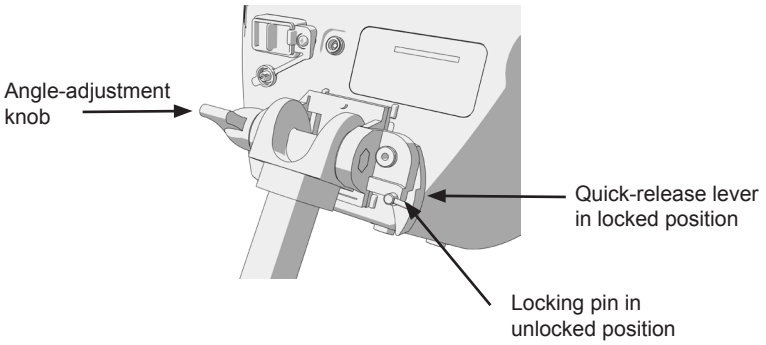
1. Screw the quick-release locking plate to the back panel of the monitor (Figure 15).
2. Make sure that the quick-release mount is on top of the mobile stand pole.

Figure 15 Attach the quick-release locking plate



3. Make sure the quick-release lever is in the release (horizontal) position.
4. Slide the monitor onto the quick-release mount.
5. Press the quick-release lever down to lock the monitor into place (Figure 16).

Figure 16 Attach the monitor to the quick-release mount



Adjust the Monitor Angle

Before you start using the GlideScope, adjust the angle of the monitor for optimal viewing. The ideal angle minimizes glare and maximizes visibility.

1. Turn the angle adjustment knob counterclockwise.
2. Tilt the monitor to the desired angle.
3. Turn the knob clockwise to secure the monitor at the desired angle (Figure 16).

Attach the GVL Cradle

1. Open the cradle latch and position the mobile stand pole on the back of the cradle.
2. Close the cradle latch and tighten in place by turning the black cradle adjustment knob clockwise (Figure 17).

Attach the Video Baton Cradle

You can attach the GlideScope Video Baton Cradle to the GVL® Cradle or directly to the mobile stand pole.

To attach the GlideScope Video Baton Cradle to the GVL Cradle:

1. Hook the video baton cradle into the GVL Cradle (Figure 17).

Figure 17 Attach the GVL cradle

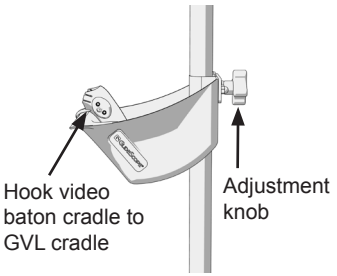


Figure 18 Attach the clamp to the baton cradle

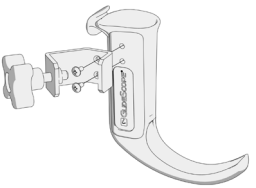
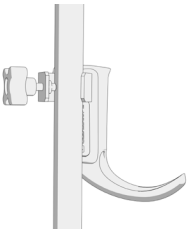


Figure 19 Clamp the cradle to the pole



To attach the GlideScope Video Baton Cradle directly to the mobile stand or IV pole:

1. Screw the center pole clamp to the GlideScope Video Baton Cradle (Figure 18).
2. Attach the center pole clamp and GlideScope Video Baton Cradle to the mobile stand or IV pole, and then turn the black knob clockwise to tighten (Figure 19).

Set Up the GlideScope Cobalt AVL on an IV Pole

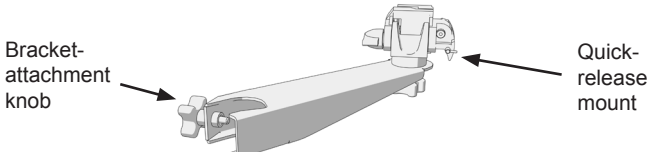
You can set up the Cobalt AVL System on an IV pole (Figure 20).

Figure 20 Cobalt AVL on IV pole

Attach the Cobalt AVL to an IV Pole

1. Place the mounting bracket on the IV pole and tighten the bracket-attachment knob until the mount is secure (Figure 21).

Figure 21 IV-Pole Mount



2. Screw the quick-release locking plate to the back panel of the monitor (Figure 15).
3. Make sure the quick-release lever is in the release (horizontal) position.
4. Slide the monitor onto the quick-release mount.
5. Press the quick-release lever down to lock the monitor into place.

To attach a GVL Cradle to the IV pole, refer to Figure 17.

To attach a Cobalt Video Baton Cradle to the IV pole refer to Figure 18 and Figure 19.

Using the GlideScope Cobalt AVL System

The GlideScope Video Cobalt AVL System provides a consistently clear view of a patient's airway, enabling quick intubation. There are several tasks you must complete to successfully use the Cobalt AVL:

1. Select the appropriately-sized Cobalt AVL Video Baton and GVL® Stat for the patient.
2. If the video baton is not connected, connect the baton to the Cobalt AVL monitor.
3. Insert the video baton into the Stat. Power on the system.
4. Verify that the video baton is operating properly and that an image appears on the monitor screen.
5. Press the **Record** button to start or stop recording.
6. Reference the GlideScope 4-Step Technique to perform intubations on page 32.
7. Optional: Download video to the USB drive.

Note: If the Cobalt AVL System locks up or becomes unresponsive for any reason, press and hold the **Power** key for 10 seconds to power down the system.

Select the Correct Video Baton and Stat

Make sure that you select the Cobalt AVL Video Baton and GVL Stat that best fit your patient. Verathon® recommends the following:

- Cobalt AVL Video Baton 1-2 (for use on infants)
  - GVL 0 Stat (patients less than 1.5 kg)*
  - GVL 1 Stat (patients between 1.5–3.6 kg)*
  - GVL 2 Stat (patients between 1.8–10 kg)*
- Cobalt AVL Video Baton 3-4 (for use on children and adults)
  - GVL 3 Stat (patients between 10 kg–Adult)*
  - GVL 4 Stat (patients between 40 kg–Morbidly obese)*

* Weight ranges are approximate; a medical professional must evaluate on a patient-by-patient basis.

Figure 22 Cobalt AVL Video Batons and Stats

Set Up the Video Baton and Stat

To set up the Cobalt AVL Video Baton and GVL® Stat, you must connect the baton to the monitor, and then insert the baton into the appropriate size stat.

Connect the Video Baton

To connect the video baton to the monitor:

1. Align the arrow on the video baton cable with the arrow on the video socket.
2. Insert the cable into the socket. You will hear a "click" when the cable is successfully connected.

   Note: When disconnecting the connector cable rotate the black connector ring.

   Warning: If the video baton is powered on for an extended period of time it is possible to exceed 41 °C at the tip of the baton where the lighting and camera are located.

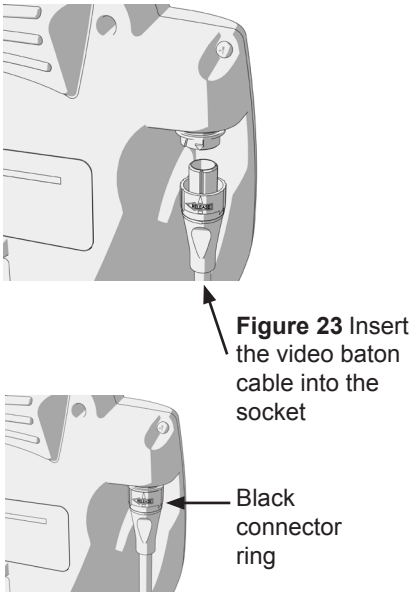


Figure 23 Insert the video baton cable into the socket

Insert the Video Baton into the Stat

1. Before you use the GVL® Stat, visually inspect the stat to ensure that all exterior surfaces are free of unintended rough areas, sharp edges, protrusions, or cracks.
2. Before you slide the baton into the stat, make sure that the logo on the side of the baton and the logo on the side of the stat are aligned.
3. Slide the video baton into the GVL Stat until it clicks into place.

   Note: Make sure that you do not insert the video baton backwards.

Figure 24 Insert the video baton cable into the stat

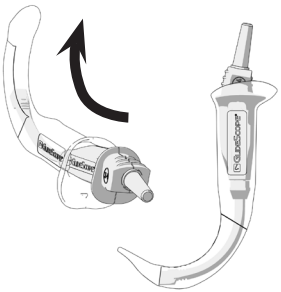
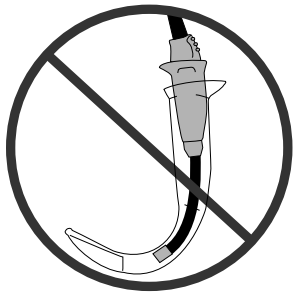


Figure 25 Do not insert the video baton cable into the stat backwards



GlideScope Anti-Fog Feature

To ensure optimal results of the anti-fog heating feature on the GlideScope video laryngoscope, perform the following steps:

1. Prior to use, open the GVL Stat pouch, but do not remove the Stat from the packaging (to keep the Stat clean until ready for use). With the Stat still in the package, insert the Cobalt Video Baton into the Stat. The video baton must be securely seated in the GVL Stat for efficient heating of the Stat.
2. Turn on the GlideScope monitor to activate the anti-fog heating feature.
3. After 30 seconds to 120 seconds, the anti-fog feature should be fully effective, depending on the ambient temperature and humidity where the equipment is being stored and/or used.

If the GlideScope Video Baton or Stat is stored in cold conditions, additional warming time may be required for optimal performance of the anti-fog feature.

Remove the Video Baton from the Stat

The GVL® Stat is a sterile, single-use device. After each use, it should be removed from the Cobalt AVL Video Baton and disposed of properly. To remove the Cobalt AVL Video Baton from the GVL Stat:

1. Hold the stat in one hand.
2. With the other hand, grasp the handle of the video baton and pull firmly (Figure 26).
3. To reduce the force required to remove the baton from the Stat, use your thumb and finger to gently press the stat (Figure 26).

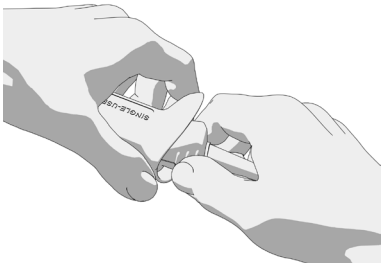


Figure 26 When using the GVL 1-2 Stat, gently pressing the collar makes removing the baton easier.

Verify the Video Baton is Operating Properly

Before you start, make sure that the video baton is operating properly. If the video baton is connected to the monitor and the monitor is turned on, a small portion of the stat appears in the upper-left corner of the monitor screen as a frame of reference.

- Look at the monitor screen to verify that an image is being received from the video baton.

Figure 27 Frame of reference

Start Recording

The Cobalt AVL System records video using memory inside the monitor.

1. Power on the system.
2. To start recording press the **Record** button.
3. When you are ready to stop recording, press the **Record** button again.

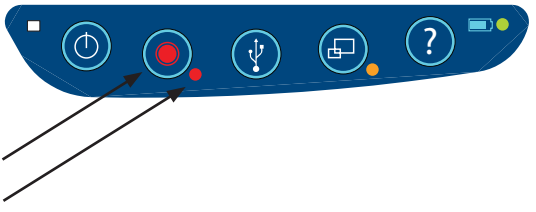


Figure 28 Record Button and Record LED

GlideScope 4-Step Technique

Verathon® recommends using the GlideScope 4-Step Technique as outlined below:

1. In the Mouth: looking directly into the patient's mouth and with the Cobalt AVL in the left hand, introduce the GlideScope video laryngoscope into the midline of the oral pharynx.
2. At the Screen: With the laryngoscope inserted, look to the monitor to identify the epiglottis, then manipulate the scope to obtain the best glottic view.
3. In the Mouth: looking directly into the patient's mouth, not at the screen, carefully guide the distal tip of the tube into position near the tip of the laryngoscope.
4. At the Screen: Look to the monitor to complete the intubation; gently rotate or angle the tube to redirect as needed.

Tips for Using the GlideScope Cobalt AVL

- The Cobalt AVL Video Baton and the GVL® Stat are designed to be inserted down the midline of the tongue to the epiglottis.
- The Cobalt AVL Video Baton with a GVL Stat may be used to produce a Macintosh style lift of the epiglottis, or to produce a Miller lift.
- Intubations using the Cobalt AVL Video Baton with a GVL Stat only require approximately 0.5–1.5 kg (1–3.5 lbs) of lifting force.
- The use of an endotracheal tube stylet is recommended. The GlideRite® Rigid Stylet has been designed to complement the angle of the video baton to facilitate intubation, and should be used with endotracheal tubes 6.0 mm and larger. A malleable stylet may be used with a 60–90° angle.
- To aid the passage of the endotracheal tube when at the vocal cords, gradually withdraw the stylet approximately 5 cm. A 1 cm adjustment (withdrawal) of the laryngoscope may be beneficial to reduce the viewing angle and allow the glottis to drop.

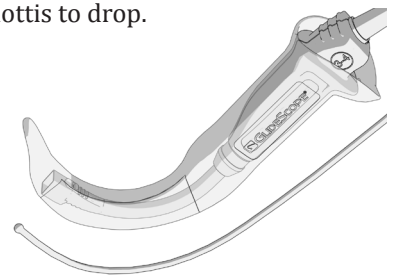


Figure 29 GlideRite Rigid Stylet, video baton, and GVL Stat

Tips for Working with Endotracheal Tubes

- Insert the ET tube behind or immediately adjacent to the GVL® Stat.
- Do not insert the stylet into the larynx during intubation.
- You can bend the proximal tip of the stylet backward to permit one-handed operation of the ET tube.
- Carefully introduce the distal end of the ET tube between the vocal folds.
- When introducing the GlideScope and/or the endotracheal tube, look directly into the mouth to avoid damaging the endotracheal tube cuff, the patient's teeth, or soft tissues such as the soft palate or tonsils.
- Advance the ET tube while simultaneously withdrawing the stylet with the thumb (Figure 30). The stylet should be withdrawn approximately 5 cm (2 in).
- Avoid excessive lifting or pushing of the glottis by the Cobalt AVL Stat. Maximum laryngeal exposure may not facilitate intubation; reducing the elevation applied to the laryngoscope may make inserting the ET tube easier.

Figure 30 Withdrawing the stylet with the thumb

Downloading Video to a USB Drive

You can store approximately 1 hour of video (approximately 40 typical intubations) in internal memory. When the monitor's internal memory reaches capacity, the oldest video file is overwritten to make room for the newest video file.

You cannot download video files directly to another computer. You must download video files to a USB drive that you connect to the back panel of the monitor. If you try to download a video file and no USB drive (provided by Verathon®) is attached, a reminder flashes on the monitor screen.

Note: There is a possibility that some brands of USB drives may not be compatible with the Cobalt AVL Monitor.

The download process to a USB drive can take up to 40 minutes when all files are being downloaded. Therefore, make sure that you do not need to use the GlideScope for the duration of the download process.

You can stop the download process at any time. If you stop the process before downloading is complete, none of the video files will be saved on the USB drive.

To download video files from the monitor to a USB drive:

1. Connect a USB drive to the USB port on the back panel of the monitor (Figure 31).
2. Make sure that the USB drive has sufficient memory to store the video files you want to download. A minimum of 1 GB USB Drive is required to download all files.

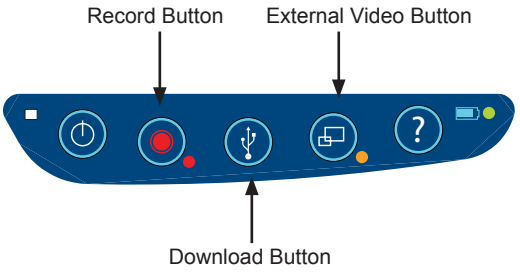
Figure 31 Insert the USB drive in the USB port

To start downloading video files, press the **Download** button . Three download options will appear.

- Press the **Download** button to download the new files since the previous download.
- Press the **External Video** button to download all the videos stored on the monitor. Downloading files may take up to 40 minutes.
- Press the **Record** button to exit the download process.

3. Press the **Download** button to cancel downloading after downloading has started. No video files will be transferred.

Figure 32 Buttons used to download video



Cleaning, Disinfecting, and Maintaining the GlideScope Cobalt AVL

Cleaning the GlideScope Cobalt AVL System is an important part of maintaining the system. Make sure that the system is clean before each use. You should also examine the Cobalt AVL periodically to make sure it is operating correctly.

General Maintenance Information

Periodic inspections should be performed to ensure safe and effective operation. It is recommended that a qualified technician perform a full visual inspection of all components at least every three months.

The technician should check for the following items:

- External damage
- Damage to the power supply
- Connectors and cable insulation integrity

To ensure patient safety, users should perform a routine inspection of the GlideScope Cobalt AVL Video Baton before every use to ensure that all endoscopic components are free of unintended rough surfaces, sharp edges, protrusions or cracks.

If inspection reveals any faults in the components, contact Verathon Medical Customer Care. All repairs must be performed by an authorized Verathon Medical Service Center.

Caution. Risk of permanent equipment damage.

Do not expose GlideScope Cobalt AVL Video Batons to temperatures above 60 °C (140 °F). Do not disinfect the GlideScope Cobalt AVL Video Batons using equipment such as autoclaves, ultrasonic cleaners, or pasteurizers. Use of such methods will cause permanent device damage and void the warranty. Refer to Cleaning Section for a list of approved cleaning procedures and products.

General Cleaning and Disinfection Information

Table 2: Risk Assessment

Device	Sterile	Use	Spaulding's/ CDC Classification	Disinfection			Sterilization
				Low Level	Int. Level	High Level	
Video Baton*	Non-sterile	Reusable	Noncritical	X			
GVL® Stat	Sterile	Single-use	Semicritical				
Stylet	Non-sterile	Reusable	Semicritical			X	
Monitor#	Non-sterile	Reusable	Noncritical	X			
Cradle#	Non-sterile	Reusable	Noncritical	X			

It is understood that all items in this chart will be used as intended.

Note:

* The Cobalt AVL Video Baton is a nonsterile, reusable device, which is protected from contact with mucous membranes and non intact skin by the Stat (sterile, single-use) when used as intended. Low Level Disinfection is recommended for the Cobalt AVL Video Baton after every patient use. High Level Disinfection is required for the video baton when it is visibly soiled.

\# Disinfect monitor and cradle when they are visibly soiled and on a regular basis as per a schedule established by the medical care facility or provider.

– Shaded areas—not required/not compatible with device materials.

– Checked boxes (X) show minimum requirement.

– Unshaded areas show permissible levels of disinfection based on compatibility with device materials.

Warning:

Disinfectants and cleaning methods listed are recommended by Verathon® based on compatibility with product materials. Refer to the disinfectant label instructions for guidance on disinfection efficacy and appropriate clinical uses.

Caution: Meticulous cleaning must precede any disinfection process, to ensure all foreign matter is removed from the surface of the device. This allows the active ingredients of the chosen process to reach all the surfaces of the device.

Availability of disinfection products varies by country, and we are unable to test products in every market. Please use the list of recommended disinfectants in this manual to compare with products available locally.

Note: When using any of the high-level disinfectants listed in Table 3, read and comply with product use instructions in all applications.

Table 3: Chemical Compatibility and Disinfection Methods for Cobalt AVL Video Baton

Active Ingredient	Compatibility	Conditions	Disinfection Level	Caution/ Comments
Enzymatic debridement agent/ detergent	General hospital grade	As per chemical manufacturer's instructions	N/A	Surface cleaning only in preparation for disinfectant
Isopropyl Alcohol Solution	70%	70% used to wipe down with minimum 1 minute exposure	Low	
Glutaraldehyde	Up to 3.4%	2.0% – exposure for minimum 20 minutes at 20 °C or as per manufacturer's instructions	High	
Ortho-Phthalaldehyde	0.55%	0.55% – exposure for 12 minutes at 20 °C or as per manufacturer's instructions	High	
Peracetic Acid	0.2%	0.2% – exposure for minimum 12 minutes at 5` 56 °C or as per manufacturer's instructions	See comments on right	Classified as a chemical sterilant
Hydrogen Peroxide	Up to 7.5%	7.5% – exposure for 30 minutes at ≥20 ºC or as per manufacturer's instructions	High	
Bleach (Sodium Hypochlorite)	Up to 8000 ppm	5000 ppm – exposure for 10 minutes at 20 °C	High	Corrosive for connector pins and SS ring
		500 ppm used to wipe down with minimum 1 minute exposure	Low	Noncorrosive at ≤ 500 ppm

Refer to page 41 for Disinfecting Steps.

Table 4: Chemical Compatibility and Disinfection Methods for GlideRite® Rigid Stylet

Active Ingredient	Compatibility	Conditions	Disinfection Level	Caution/ Comments
Glutaraldehyde	Up to 3.4%	2.0% – exposure for minimum 20 minutes at 20 °C or as per manufacturer's instructions	High	
Ortho-Phthalaldehyde	0.55%	0.55% – exposure for 12 minutes at 20 °C or as per manufacturer's instructions	High	
Peracetic Acid	0.2%	0.2% – exposure for minimum 12 minutes at 50 to 56 °C or as per manufacturer's instructions	See comments on right	Classified as a chemical sterilant
Isopropyl Alcohol Solution	70%	70% – exposure for 10 minutes at 20 °C	Intermediate	
		70% used to wipe down with minimum 1 minute exposure	Low	
Bleach (Sodium Hypochlorite)	≤ 500 ppm	500 ppm used to wipe down with minimum 1 minute exposure	Low	Non-corrosive at ≤ 500 ppm
Enzymatic debridement agent/ detergent	General hospital grade	As per chemical manufacturer's instructions	N/A	Surface cleaning only in preparation for disinfectant
N/A	Tested in autoclave (steam cycle)	Minimum 4 minute 132 °C pre-vacuum steam sterilization cycle	See comments on right	Based on requests from users, an autoclave cycle has been established for the Stylet for ease of use

Refer to page 42 for Cleaning and Disinfecting Steps.

Cleaning and Disinfecting the GlideScope Cobalt AVL System

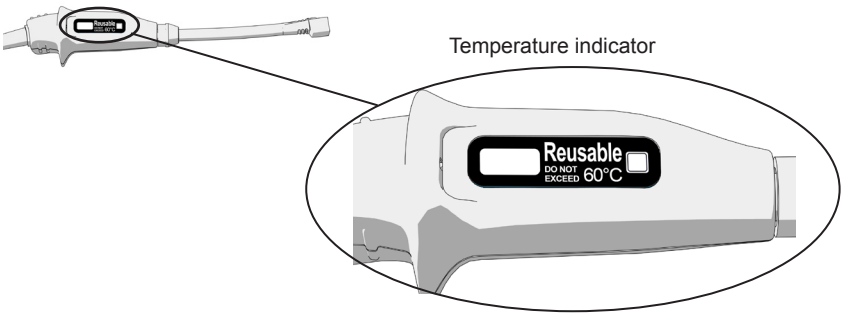
Warning

> **Caution. Risk of permanent equipment damage.**
>
> Do not expose GlideScope Cobalt AVL Video Batons to temperatures above 60 °C (140 °F).

Make sure that you do not overheat the video baton during cleaning. You can monitor the color of the temperature gauge on the handle to avoid overheating the Cobalt AVL Video Baton (Figure 33).

The manufacturer's warranty is void if the product is exposed to temperatures above 60 °C (140 °F).

Figure 33 Monitor the color of temperature indicator to avoid overheating the Cobalt AVL Video Baton



■	The temperature indicator turns black if the GlideScope Cobalt AVL Video Baton is heated above 60 °C.
■ □	A gray or white indicator does not indicate overheating.

Caution

Do not use autoclaves or pasteurizers for the Cobalt AVL system.

Use of such methods will cause permanent device damage and void the warranty.

Bleach can be used on the video baton but with special attention to the connector.

Bleach can corrode the stainless steel inserts and damage the connector pins.

Cleaning the GlideScope Cobalt AVL Video Baton

The GlideScope Cobalt AVL Video Baton, which is protected by the GVL® Stat, is not intended to have direct patient contact.

Caution

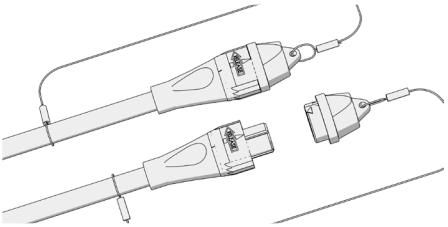
> Do not place the GlideScope Cobalt AVL Video Baton in the cradle if it is contaminated.

The video baton, which is protected from direct contact with the patient by the Stat, will normally only require cleaning and wiping down between uses using either IPA or bleach. If there is concern about its level of contamination or if it is exposed to contamination then it can be disinfected using a High Level Disinfection method, as defined in Table 3 on page 37.

Caution: Ensure the protective cap is properly fitted on the video baton prior to immersion in water. Bleach can be used on the video baton but with special attention to the connector, as it can corrode the stainless steel inserts and damage the connector pins. You can also use a soft brush to scrub the video baton, taking care not to damage the camera lens. However, do not use a wire brush because it may damage the surface of the video baton.

1. Detach the GVL Stat from the video baton as described on page 30. **Note:** A used GVL Stat is a biohazard and must be disposed of in a manner consistent with local protocols.
2. Disconnect the video baton from the monitor.
3. Place the protective cleaning cap over the connector. Make sure that the mark on the cap is aligned with the arrow on the cable (Figure 34).

Figure 34 Make sure that the protective cap is in the correct position before you clean the video baton



Correct cleaning position – protective cap covering the electronic connector

4. Wash the video baton manually using a hospital grade equipment detergent or an enzymatic debridement agent/detergent to remove all foreign material (eg, soil and organic material) from the surface of the device.
5. The video baton can now be disinfected.

Disinfecting the GlideScope Cobalt AVL Video Baton

To disinfect use any of the chemicals listed in Table 3 and do the following:

1. Ensure the equipment is clean (see Cleaning Section for video baton).
2. Ensure the protective caps on the connectors are secure.
3. Prepare the disinfectant solution at the concentration and temperature recommended by the disinfectant manufacturer. Disinfect the equipment following the disinfectant manufacturer's instructions or as stated in Table 3 on page 37.
4. After the disinfection process, rinse (as applicable) and dry the video baton and then store the equipment in a clean environment.

Cleaning the GlideScope Cobalt AVL Monitor

Wipe the exterior of the monitor with IPA (70% isopropyl alcohol), bleach (100 ppm), or a mild detergent and water.

Cleaning the GlideScope Cobalt AVL Cradle

Wipe the cradle with a standard hospital-grade surface cleaning product.

Cleaning and Disinfecting the GlideRite Rigid Stylet

The Stylet is a nonsterile, reusable device which requires cleaning and High Level Disinfection as defined in the risk analysis—Table 2 on page 36.

1. Clean using a Low Level Disinfection wipe method or rinse/ brush method.
2. Using a brush, apply detergent or an enzymatic debridement agent.
3. Rinse under clean, running water for 1 minute.
4. Disinfect the Stylet using a High Level Disinfection method as defined in Table 4 on page 38.

Note: For end user convenience it has been determined that the GlideRite® Rigid Stylet is compatible with the autoclaving cycle in Table 4 on page 38.

Replacing the GlideScope Monitor Battery

Under normal operating conditions, the monitor battery will last 2–3 years; or approximately 500 charge/discharge cycles.

The battery is not user-replaceable. In case of battery malfunction, do not attempt to replace the monitor battery. Any attempts to replace the battery by unauthorized service technicians may cause serious harm to the user and will void the warranty. Please contact your Verathon Medical Customer Care Representative for more information on battery replacement.

Device Disposal

Disposal of this device can be coordinated through your Verathon Medical Service Center in accordance with WEEE requirements.

GlideScope Cobalt AVL Warranties

Verathon Medical includes a one-year warranty when you buy a GlideScope Cobalt AVL System. You can also buy a Premium Customer Care℠ Warranty that can extend your warranty for up to five (5) years from date of purchase.

Original First Year Total Customer Care Warranty

Verathon® warrants the GlideScope Cobalt AVL System against defects in material and workmanship. This warranty applies for one (1) year from the date of shipment from Verathon. This warranty applies only to the original purchaser of the GlideScope System.

If a customer's system requires service or repair, Verathon will either replace or provide a loaner unit within one (1) business day from the date of customer service notification. The customer agrees to send the defective unit to Verathon (cleaned and disinfected as appropriate) upon receipt of the loaner unit, and the customer agrees to return the loaner unit within two (2) business days of receipt of the repaired unit.

- This warranty provides coverage for damage from accidental drops or mishandling. It does not cover damage due to deliberate mishandling.
- This warranty does not apply if the product has been damaged due to, or as the result of, service or modification by anyone other than an authorized Verathon Service Center.
- This warranty does not apply if there is evidence of the equipment being exposed to temperatures in excess of 60 °C.
- All exchange parts become property of Verathon.

The product shall be used in accordance with the instructions contained in this User's Manual. Consumable items (ie, endotracheal tubes, Stats, stylets, etc) shall be used in conformance to Verathon product specifications. Consumable items are not covered under this warranty.

What is covered?

Warranty coverage is extended to the GlideScope Cobalt AVL System:

- Video Monitor including Display Connector Cable
- GlideScope Cobalt AVL Video Baton

Additional video batons purchased either singularly or as a part of a system must be warranted separately.

Additional video monitors purchased either singularly or as part of a system must be warranted separately.

Premium Customer Care Warranty

The Premium Customer Care℠ warranty from Verathon Medical may be extended for a total of up to five (5) years from date of purchase.

Disclaimer of Additional Warranties

There are no understandings, agreements, representations of warranties expressed or implied (including warranties of merchantability or fitness for a particular purpose) other than those set forth in the preceding Warranty section. The contents of this manual do not constitute a warranty.

Some states disallow certain limitations on applied warranties. The purchaser, user, and patient should consult state law if there is a question regarding this disclaimer. This information, descriptions, recommendations, and safety notations in this manual are based upon Verathon® experience and judgment with GlideScope Systems as of August 2009. The contents of this manual should not be considered to be all-inclusive, or to cover all contingencies.

Symbol Directory

Symbol	Meaning
	Type BF equipment
	Class II Electrical equipment
	CE marking in accordance with the Medical Device Directive (CE 0413 for Sterile Devices)
	Canadian Standards Association (CSA) mark of certification to applicable standards for electromedical equipment
	Tested to Federal Communications Commission Requirements
	Caution – consult accompanying documents. Read instructions before connecting or operating
	Subject to WEEE (Waste of Electronic Electrical Equipment) regulations

GlideScope Cobalt AVL Product Specifications

Cobalt AVL Video Baton 1-2 Length of flexible baton .....66 mm Height at camera .....6 mm Width at camera .....7 mm Video cable length .....204 cm Weight .....180 g	
Cobalt AVL Video Baton 3-4 Length of flexible baton .....105 mm Height at camera .....11 mm Width at camera .....11 mm Video cable length .....203 cm Weight .....238 g	
GVL® Stat 0 Length (blade tip to handle) .....36 mm Height at camera .....9 mm Width at camera .....9 mm Max blade width in front of camera .....9 mm	
GVL Stat 1 Length (blade tip to handle) .....44 mm Height at camera .....9 mm Width at camera .....10 mm Max blade width in front of camera .....13 mm	
GVL Stat 2 Length (blade tip to handle) .....56 mm Height at camera .....9 mm Width at camera .....11 mm Max blade width in front of camera .....16 mm	
GVL Stat 3 Length (blade tip to handle) .....78 mm Height at camera .....16 mm Width at camera .....16 mm Max blade width in front of camera .....21 mm	
GVL Stat 4 Length (blade tip to handle) .....92 mm Height at camera .....15 mm Width at camera .....20 mm Max blade width in front of camera .....28 mm	

Cobalt AVL Monitor
TFT Color, 6.4 in (diagonal), VGA 640 x 480
Monitor .....6.4 in
Height .....190 mm
Width .....225 mm
Depth .....80 mm
Weight .....1.0 kg

GlideRite® Rigid Stylet
Handle Length .....82 mm
Handle Width .....16 mm
Stylet Rod Length .....266 mm
Distal Tip Diameter .....5 mm

GlideRite Auto Stylet
Handle Length .....110 mm
Handle Width .....25 mm
Stylet Rod Length .....347 mm
Distal Tip Diameter .....5 mm

GlideRite DLT Stylet
Handle Length .....31 mm
Handle Width .....40 mm
Stylet Rod Length .....394 mm
Distal Tip Diameter .....5 mm

GlideRite Guide
Height .....190 mm
Width .....98 mm
Thickness .....15 mm

IV Pole Mount
Weight ..... 0.9 kg
Arm Length .....27 cm
Width .....6.2 cm

Mobile Stand
Base height .....12.5 cm
Base weight .....2.5 kg
Base diameter .....61 cm
Pole height range .....75–119 cm
Pole weight .....0.7 kg

GlideScope Specifications, Standards, and Approvals

General Specifications

Classification:	Electrical Class II, Applied Part BF
Line Voltage:	Range: 100–240 VAC, 50 and 60 Hz Connect to a medical grade power supply
DC Power Supply:	12V DC, 2.5A max
Fuse:	Internal 2.5A Hold / 5A Trip, 15V max

Operating and Storage Specifications

Operating Conditions

Temperature:.....10 °C to 40 °C
Relative Humidity:.....0 to 95%
Atmospheric Pressure:.....440–1060 hPa

Shipping and Storage Conditions

Temperature:.....-20 °C to 45 °C
Relative Humidity:.....0 to 95%
Atmospheric Pressure:.....440–1060 hPa

Charging Conditions

Temperature:.....0 °C to 40 °C
Relative Humidity:.....0 to 95%
Atmospheric Pressure:.....440–1060 hPa

Standards and Approvals

CMDCAS ISO 13485, Certificate No. 9235
EC Certificate for Class I sterile Stats, Certificate No. 41315937
CSA Requirements met (Master Contract # 213281), CSA Certificates issued
CB Scheme requirements met (CB Bulletin 112a), CB Test Certificates issued
CE Marking EMC Directive
VCCI Technical V-3

GlideScope Cobalt AVL Parts and Accessories

Part Description	Part Number
GlideScope Cobalt AVL Monitor	0570-0314
GlideScope Cobalt AVL Video Baton 1-2	0570-0312
GlideScope Cobalt AVL Video Baton 3-4	0570-0313
GVL® Stat 4, Qty 10	0270-0628
GVL Stat 3, Qty 10	0270-0626
GVL Stat 2, Qty 10	0270-0429
GVL Stat 1, Qty 10	0270-0428
GVL Stat 0, Qty 10	0270-0679
GVL Stat 4, Qty 100	0270-0629
GVL Stat 3, Qty 100	0270-0627
GVL Stat 2, Qty 100	0270-0431
GVL Stat 1, Qty 100	0270-0430
GVL Stat 0, Qty 100	0270-0680
GlideRite® Rigid Stylet (Package of 10)	0270-0681
GlideRite Auto Stylet (Package of 2)	0270-0678
GlideRite DLT Stylet (Package of 10)	0270-0674
GlideRite Guide	0803-0104
GlideScope GVL® Cradle	0810-0126
GlideScope Video Baton Cradle 1-2	0810-0151
GlideScope Video Baton Cradle 3-4	0810-0134
Cobalt AVL Mobile Stand	0800-0410
Cobalt AVL IV Pole Mounting Kit	0810-0200
Universal Accessory Basket	0803-0104
Cobalt AVL Video Monitor 12V DC Power Adaptor	0400-0105
HDMI to DVI Cable, 6m	0600-0533
AC Power Cord 15 ft (4.5 m) – North America	0600-0244
AC Power Cord 2 ft (0.6 m) – North America	0600-0247
AC Power Cord 15 in (4.5 m) – EU	0600-0243
AC Power Cord 2 ft (0.6 m) – EU	0600-0246
AC Power Cord 15 ft (4.5 m) – UK	0600-0245
AC Power Cord 2 ft (0.6 m) – UK	0600-0248
GlideScope Cobalt AVL Cleaning Poster	0900-2683
GlideScope Cobalt AVL Cleaning QRC	0900-2685
GlideScope Cobalt AVL Quick Start and Icon QRC	0900-2670
GlideScope 4-Step Technique QRC	0900-1436
GlideScope Cobalt AVL System User's Manual (English)	0900-2654
GlideScope Cobalt AVL In-service CD	0900-2689
GlideScope Cobalt AVL USB Flash Drive	0901-0102

Contact Information

To obtain additional information regarding your GlideScope Cobalt AVL System, please contact Verathon Medical Customer Care at:

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